

## PATENT SPECIFICATION

178,037

Convention Date (Belgium): June 13, 1921.

Application Date (in United Kingdom): July 6, 1921. No. 18,275/21.

Complete Accepted: Apr. 13, 1922.



## COMPLETE SPECIFICATION.

## Improvements in Shock Absorbers for Motor Cars and other Vehicles.

We, SOCIÉTÉ ANONYME USINES G. DERRION, of Loucin-lez-Laège, Belgium, a company organized under the laws of Belgium, do hereby declare the nature of  
 5 this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The invention relates to shock absorbers  
 10 for motor cars and other vehicles, and of that type described in the Specification of Patent No. 14,038 of 1912 in which the movement of the spring is transmitted to a shaft carrying a pair of vanes which are  
 15 caused to be rotated within a cylinder containing oil or other fluid, in such a manner that the fluid offers a resistance to the movement of the spring towards its normal position in either direction, but  
 20 allows of the spring moving freely in either direction away from its normal position.

In the arrangement described in the said specification each of the vanes is provided with a valve one or other of which  
 25 is arranged to open according to the direction of movement of the spring. The object of the present invention is to provide a shock absorber of the type referred  
 30 to in which the employment of valves is rendered unnecessary.

Figure 1 of the accompanying drawings shows a cross-section through a shock absorber constructed in accordance with  
 35 this invention, on the line A—B Figure 2.

Figure 2 shows a longitudinal section on the line C—D Figure 1.

Figure 3 is a plan of the vanes and  
 40 shutter or closure member when separated from the cylinder.

Referring to the drawings the shock absorber comprises an oil cylinder 1

[Price 1/-]

within which are arranged vanes 3 and 4, formed in one piece with a central hub 5  
 45 carried by an integral tubular shaft 13, the said hub and shaft being rotatably mounted upon a central spindle 6. Fitting closely within the cylinder 1 is a  
 50 liner 14 having oil passages 10 and carrying a radial partition 2. The forward edge of each of the vanes 3 and 4 is cut away, and fitting within this cut-away  
 55 portion is a shutter or closure member 8 rotatably mounted upon the hub 5 and carrying projecting portions 7 adapted to engage with abutments upon the vanes  
 60 (formed by the cut-away portion) and close either of the oil passages 11 or 12. The oil cylinder 1 is adapted to be fixed to the chassis of the vehicle, whilst the  
 65 shaft 13 is connected by a lever or other means to the wheel axle, or to the centre portion of the spring, in such a manner that the movement of the latter away  
 70 from or towards its normal position turns the vanes 3 and 4 within the oil cylinder 1.

The operation of the device is as follows: When the spring is in its normal position the vanes 3 and 4 are approximately in  
 75 the position shown in Figure 1. As soon, however, as the spring moves upwards away from its normal position the vanes turn about the spindle 6 in an anti-clockwise direction, the vane 4 moving over the  
 80 oil passage 10 in the liner, so that both vanes move freely and no resistance is offered to the movement of the spring. On, however, the spring returning towards its  
 85 normal position the vanes are turned in the opposite direction so that the abutment on the vane 3 engages with the projection 7 on the shutter or closure member 8 and closes the passage 11 thus compressing the oil which is forced through a small passage (not shown) to the other

side of the partition 2. A resistance is consequently offered to the movement of the spring towards its normal position. In a similar manner, when the spring 5 moves below its normal position the vane 3 moves over the oil passage 10 so that no resistance is offered to the movement of the spring, whilst on the spring moving up towards its normal the vane 4 engages 10 with the projecting part 7 of the shutter 8 and closes the oil passage 12, so that a resistance is offered to the said upward movement.

Having now particularly described and 15 ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

A shock absorber of the type referred to 20 for motor cars and other spring-suspended

vehicles, comprising vanes carried by a hub to which a rotary movement is imparted by the movement of the spring, the said vanes being mounted within a cylinder or receptacle containing oil or 25 other fluid and being each provided with an oil or fluid passage adapted to be opened or closed, according to the direction of movement of the spring, by a shutter or closure freely mounted upon 30 the said hub, the arrangement being such that a retarding effect is exerted on the movement of the spring towards its normal position, whilst the said spring is allowed to move freely in a direction 35 away from its normal position.

Dated this 5th day of July, 1921.

H. N. & W. S. SKERRETT,  
24, Temple Row, Birmingham,  
Agents for Applicants. 40

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1922.

[This Drawing is a reproduction of the Original on a reduced scale]

Fig. 1.

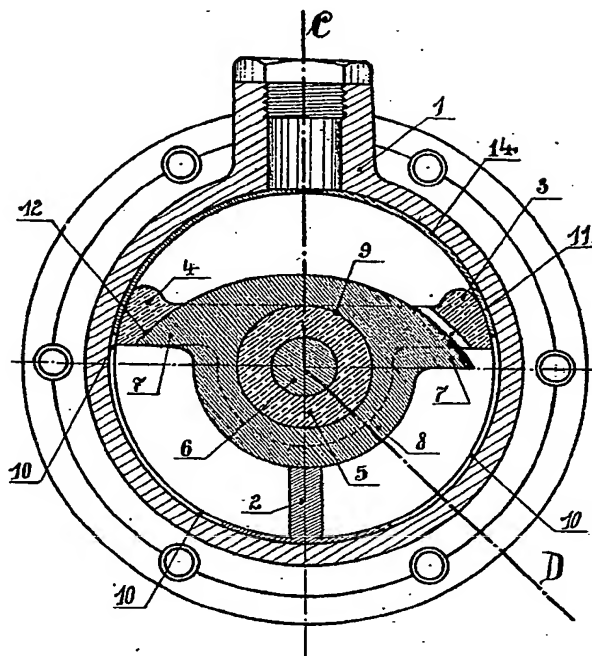


Fig. 2.

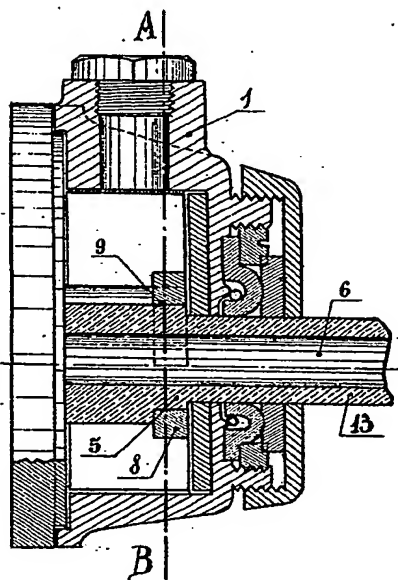
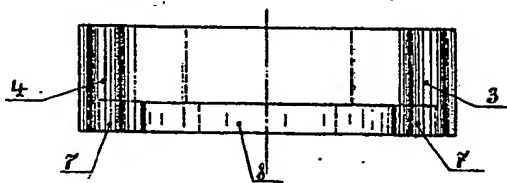


Fig. 3.



**THIS PAGE BLANK (USPTO)**